

Message

---

**From:** Wayne Miller [Miller.Wayne@azdeq.gov]  
**Sent:** 11/10/2015 7:07:39 PM  
**To:** d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]  
**CC:** steve [steve@uxopro.com]  
**Subject:** 2015-11-10 - wafb - sto12 - good from my POV - Steam Injection termination criteria not met

Thank you. I think you have put together very good notes. I believe agencies can add more depth/explanation in the future, if such arises.

Steve and Bo are conferring, but do not delay waiting for ADEQ.

**From:** d'Almeida, Carolyn K. [mailto:dAlmeida.Carolyn@epa.gov]  
**Sent:** Tuesday, November 10, 2015 11:00 AM  
**To:** Davis, Eva <Davis.Eva@epa.gov>; Dan Pope <DPope@css-dynamac.com>  
**Cc:** Wayne Miller <Miller.Wayne@azdeq.gov>; steve@uxopro.com; Henning, Loren <Henning.Loren@epa.gov>  
**Subject:** 2015-11-10 - wafb - sto12 - Steam Injection termination criteria not met - cda epa

Eva

Yes, I was thinking I would just forward these notes to AF and Amec, once I had concurrence from all of you - does anyone have anything to add?

**From:** Davis, Eva  
**Sent:** Tuesday, November 10, 2015 9:27 AM  
**To:** d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Dan Pope <DPope@css-dynamac.com>  
**Cc:** Wayne Miller <Miller.Wayne@azdeq.gov>; steve@uxopro.com; Henning, Loren <Henning.Loren@epa.gov>  
**Subject:** RE: Has criteria for termination of Steam Injection been met?

Hi Carolyn –

I have noted also that AMEC is glossing over the shut down criteria as they are written in the RD/RAWP when they make claims that the criteria have been met. As for their primary criteria of mass extraction rates of 10% of the peak rate, I argued against 10% of the peak extraction rate being used for as a shut down criteria because the percentage is too high – we typically continue treatment to much smaller percentages, and I realized that it would take much more treatment to reach their benzene concentration criteria. Now they are wanting to shut down when they are still at ~ 30% of peak. I thought the benzene concentration range of 100 – 500 ug/l was reasonable – but they aren't even approaching that yet. I was ok with the completion of pressure cycling criteria, but that hasn't been met. I was concerned about the amount of steam injection criteria because I was afraid they would want to immediately shut down when they reached the design steam injection amount, but they want to shut down well before they reach that amount. I recommend that in response to what they have presented to us in the last 2 months, that we supply them with something in writing giving our evaluation of where they are in relation to the shutdown criteria. Your notes are one way that that can be done.

Eva

**From:** d'Almeida, Carolyn K.  
**Sent:** Monday, November 09, 2015 3:25 PM  
**To:** Davis, Eva; Dan Pope  
**Cc:** Wayne Miller; steve@uxopro.com; Henning, Loren  
**Subject:** Has criteria for termination of Steam Injection been met?

My notes, for your use. Comments?

Carolyn d'Almeida  
Remedial Project Manager  
Federal Facilities Branch (SFD 8-1)  
US EPA Region 9  
(415) 972-3150

*"Because a waste is a terrible thing to mind..."*

---

NOTICE: This e-mail (and any attachments) may contain PRIVILEGED OR CONFIDENTIAL information and is intended only for the use of the specific individual(s) to whom it is addressed. It may contain information that is privileged and confidential under state and federal law. This information may be used or disclosed only in accordance with law, and you may be subject to penalties under law for improper use or further disclosure of the information in this e-mail and its attachments. If you have received this e-mail in error, please immediately notify the person named above by reply e-mail, and then delete the original e-mail. Thank you.